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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HWANG, JOON H	

ART UNIT	PAPER NUMBER
2166	

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/603,037	PETCULESCU ET AL.	
	Examiner	Art Unit	
	Joon H. Hwang	2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-16,18-24,26,27 and 29-48* is/are pending in the application.

4a) Of the above claim(s) *7,17,25 and 28* is/are ~~withdrawn from consideration~~ Canceled.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-16,18-24,26,27 and 29-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The applicants amended claims 1, 11, 20, 27, 32, and 40 and canceled claims 7, 17, 25, and 28 in the amendment received on 2/17/05.

The claims 1-6, 8-16, 18-24, 26-27, and 29-48 are pending.

Response to Arguments

2. Applicant's arguments filed in the amendment received on 2/17/05 have been fully considered but they are not persuasive.

A. The applicants argue that claims 1-6, 8-16, 18-19 and 32-48 recite statutory subject matter.

The examiner respectfully traverses.

The specification, page 5, section 19, defines "computer-readable media" as including both storage media (i.e., memory) and communication media (i.e., carrier wave).

A computer-readable medium including a carrier wave, or signal, is non-statutory subject matter as set forth in MPEP 2106 (IV)(B)(2)(a):

(a) Statutory Product Claims

Products may be either machines, manufactures, or compositions of matter.

A *machine* is "a concrete thing, consisting of parts or of certain devices and combinations of devices." *Burr v. Duryee*, 68 U.S. (1 Wall.) 531, 570 (1863).

A *manufacture* is "the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties or combinations, whether by hand labor or by machinery." *Chakrabarty*, 447 U.S. at 308, 206 USPQ at 196-97 (quoting *American Fruit Growers, Inc. v. Brogdex Co.*, 283 U.S. 1, 11 (1931)).

A *composition of matter* is "a composition of two or more substances [or] . . . a[] composite article, whether [it] be the result[] of chemical union, or of mechanical mixture, or whether . . . [it] be [a] gas[], fluid[], powder[], or solid[]." *Id.* at 308, 206 USPQ at 197

> (quoting *Shell Development Co. v. Watson*, 149 F. Supp. 279, 280, 113 USPQ 265, 266 (D.D.C. 1957), *aff'd per curiam*, 252 F.2d 861, 116 USPQ 428 (D.C. Cir. 1958)).
>
> If a claim defines a useful machine or manufacture by identifying the physical structure of the machine or manufacture in terms of its hardware or hardware and software combination, it defines a statutory product. See, e.g., *Lowry*, 32 F.3d at 1583, 32 USPQ2d at 1034-35; *Warmerdam*, 33 F.3d at 1361-62, 31 USPQ2d at 1760. Office personnel must treat each claim as a whole. The mere fact that a hardware element is recited in a claim does not necessarily limit the claim to a specific machine or manufacture. Cf. *In re Iwahashi*, 888 F.2d 1370, 1374-75, 12 USPQ2d 1908, 1911-12 (Fed. Cir. 1989), cited with approval in *Alappat*, 33 F.3d at 1544 n.24, 31 USPQ2d at 1558 n.24.

A claimed carrier wave, or signal, has no physical structure, therefore is not a machine. A claimed carrier wave, or signal, does not have physical substance, therefore is not a manufacture. A claimed carrier wave, or signal, is not matter, but a form of energy, therefore is not a composition of matter.

Therefore, the claims 11-16 and 18-19 are non-statutory.

MPEP 2106 (II)(A) states:

> The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (*Brenner v. Manson*, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); *In re Ziegler*, 992, F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)). Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful.
>
> Apart from the utility requirement of 35 U.S.C. **101**, usefulness under the patent eligibility standard requires significant functionality to be present to satisfy the useful result aspect of the practical application requirement. See *Arrhythmia*, 958 F.2d at 1057, 22 USPQ2d at 1036. Merely claiming nonfunctional descriptive material stored in a computer-readable medium does not make the invention eligible for patenting. For example, a claim directed to a word processing file stored on a disk may satisfy the utility requirement of 35 U.S.C. **101** since the information stored may have some "real world" value. However, the mere fact that the claim may satisfy the utility requirement of 35 U.S.C. **101** does not mean that a useful result is achieved under the practical application requirement. The claimed invention as a whole must produce a "useful, concrete and tangible" result to have a practical application.

Since claims 1-6, 8-10, and 40-48 produce no tangle result, they are non-statutory.

MPEP 2106 (IV)(B)(1)(b) states:

> Descriptive material that cannot exhibit any functional interrelationship with the way in which computing processes are performed does not constitute a statutory process, machine, manufacture or composition of matter and should be rejected under **35 U.S.C. 101**. Thus, Office personnel should consider the claimed invention as a whole to determine whether the necessary functional interrelationship is provided.
>
> Where certain types of descriptive material, such as music, literature, art, photographs and mere arrangements or compilations of facts or data, are merely stored so as to be read or outputted by a computer without creating any functional interrelationship, either as part of the stored data or as part of the computing processes performed by the computer, then such descriptive material alone does not impart functionality either to the data as so structured, or to the computer. Such "descriptive material" is not a process, machine, manufacture or composition of matter. (Data consists of facts, which become information when they are seen in context and convey meaning to people. Computers process data without any understanding of what that data represents. Computer Dictionary 210 (Microsoft Press, 2d ed. 1994).)

Since claims 32-39 recite "a data structure" having mere arrangements of data without any functional interrelationship, they are non-statutory.

B. The applicants argue that *Malloy does not suggest or teach that relationships between attributes of a dimension are not subject to restrictions placed on the database.*

The examiner respectfully traverses. Malloy discloses a user can create or modify a metadata object (section 59 on page 3), which includes a dimension metadata object (sections 65 and 71 on page 4 and section 275 on page 18). A dimension is

defined by a set of one or more attributes, wherein each attribute corresponds to a column of a relational table (fig. 4, section 74 on page 5, and section 105 on page 7). Malloy discloses a multiple hierarchies can be defined for a dimension (section 105 on page 7), wherein the user can set or define a hierarchy for the dimension (section 140 on page 11). Furthermore, Malloy discloses an attribute order of a hierarchy can be varied (section 111 on page 8). These teach that the system in Malloy does not prevent the user from creating a dimension based on one or more attributes corresponding columns of tables and a hierarchy among the one or more attributes for the dimension. Therefore, Malloy teaches defining relationships between attributes, wherein the relationships are not subject to restrictions placed on the database. The applicants' arguments are not persuasive.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-6, 8-16, 18-19 and 32-48 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

"A method" in 1st line of claim 1 is non-statutory as not being **tangibly embodied** in a manner so as to be executable. Since claims 2-6 and 8-10 do not add tangibility to the claimed subject matter, they are likewise rejected.

"A computer-readable medium" in 1st line of claim 11 is insufficient to render the claim **tangibly embodied** in a manner so as to be executable because "a computer-

readable medium" also includes a carrier wave. See the specification section 19 on page 5. Since claims 12-16 and 18-19 do not add tangibility to the claimed subject matter, they are likewise rejected.

"A data structure embodied by at least one computer readable medium" in 1st line of claim 32 is insufficient to render the claim **tangibly embodied** in a manner so as to be executable because "a computer-readable medium" also includes a carrier wave. See the specification section 19 on page 5. Further, "A data structure" is non-statutory as being non-functional descriptive material. Claims 33-39 are likewise rejected.

"A method" in 1st line of claim 40 is non-statutory as not being **tangibly embodied** in a manner so as to be executable. Since claims 41-48 do not add tangibility to the claimed subject matter, they are likewise rejected.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-6, 8-16, 18-24, 26-27, and 29-48 are rejected under 35 U.S.C. 102(e) as being anticipated by Malloy et al. (U.S. Publication No. 2004/0122844).

With respect to claim 1, Malloy teaches defining a dimension comprising a plurality of attributes (i.e., a dimension metadata object is built on a plurality of attribute metadata objects, section 71 on page 4, section 74 on page 5, fig. 2, and fig. 4). Malloy teaches assigning each attribute to a respective column of the database (section 71 on page 4, section 74 on page 5, section 125 on page 9, fig. 2, and fig. 4). Malloy teaches defining relationships between the attributes (i.e., each dimension can have multiple hierarchies of attributes, sections 75-76 on page 5, section 86 on page 6, and sections 102 and 105-107 on page 7), wherein said relationships are not subject to restrictions placed on the database (i.e., an attribute order of a hierarchy can be varied, and the attribute order can be defined by the user, section 59 on page 3, sections 65 and 71 on page 4, section 74 on page 5, section 105 on page 7, section 111 on page 8, section 140 on page 11, section 275 on page 18, fig. 4, and fig. 15).

With respect to claim 2, Malloy teaches accessing the database via the dimension (i.e., a relational database is accessed via dimension, fig. 6, fig. 5, fig. 20, and section 178 on page 14).

With respect to claim 3, Malloy teaches defining at least one hierarchy comprising a sequence of the attributes (i.e., each dimension can have multiple hierarchies of attributes, figs. 12-15, sections 75-76 on page 5, section 86 on page 6, and sections 102 and 105-108 on page 7).

With respect to claim 4, Malloy teaches each hierarchy defines a drill down path for accessing the database (fig. 20 and section 178 on page 14).

With respect to claim 5, Malloy teaches a hierarchy contains one attribute (fig. 20, sections 75-76 on page 5, and section 178 on page 14).

With respect to claim 6, Malloy teaches the act of defining the at least one hierarchy is independent of the database (i.e., an attribute order of a hierarchy can be varied, thus the attribute order can be arbitrarily defined, section 111 on page 8 and fig. 15).

With respect to claim 8, Malloy teaches the database is a relational database (i.e., a relational database 140 in fig. 1).

With respect to claim 9, Malloy teaches the dimension is utilized with an on line analysis processing (OLAP) system (i.e., OLAP 100 in fig. 1, section 4 on page 1, and section 59 on page 3).

With respect to claim 10, Malloy teaches an application programming interface (API) comprising means for performing the method of claim 1 (section 59 on page 3).

Claims 11-16 and 18-19 are essentially the same as claims 1-6 and 8-9 except that it sets forth the claimed invention as a computer-readable medium rather than a method and rejected for the same reasons as applied hereinabove.

Claims 20-24 and 26 are essentially the same as claims 1-6 and 8-9 except that it sets forth the claimed invention as a system rather than a method, wherein for claim 20, Malloy further teaches a processor coupled to a storage device, the storage device comprising a database (fig. 29, fig. 1, and section 303 on page 21), therefore, claims 20-24 and 26 are rejected for the same reasons as applied hereinabove.

Claims 27 and 29-31 are essentially the same as claims 1-3, 6, and 9-10 except that it sets forth the claimed invention as a system rather than a method and rejected for the same reasons as applied hereinabove.

Claims 32-39 are essentially the same as claims 1, 3-6 and 8-9 except that it sets forth the claimed invention as a data structure rather than a method, wherein for claim 37, Malloy further teaches the logical structure is defined independent of restrictions associated with the database (i.e., an attribute order of a hierarchy can be varied, thus the attribute order can be arbitrarily defined, section 111 on page 8 and fig. 15), therefore, claims 32-39 are rejected for the same reasons as applied hereinabove.

With respect to claim 40, the limitations of claim 40 are similar to the limitations of claims 1 and 2 above. Malloy further teaches receiving a data retrieval request including a dimension (i.e., a SQL query including a dimension for data retrieval, fig. 20, fig. 25, section 178 on page 14, and sections 253-272 on page 18). Therefore, the limitations of claim 40 are rejected in the analysis of claims 1-2 above, and the claim is rejected on that basis.

With respect to claim 41, Malloy teaches providing the retrieved data in response to the data retrieval request (fig. 20, fig. 25, fig. 29, section 178 on page 14, and sections 253-272 on page 18).

With respect to claim 42, Malloy teaches the data retrieval request further including at least hierarchy comprising a sequence of the attributes (i.e., a drill up/down operation request, fig. 20, fig. 25, section 178 on page 14, and sections 253-272 on page 18).

With respect to claim 43, Malloy teaches each hierarchy defines a drill down path for accessing the database (fig. 20 and section 178 on page 14).

With respect to claim 44, Malloy teaches a hierarchy contains one attribute (fig. 20, sections 75-76 on page 5, and section 178 on page 14).

With respect to claim 45, Malloy teaches each sequence is defined independent of restrictions associated with the database (i.e., an attribute order of a hierarchy can be varied, thus the attribute order can be arbitrarily defined, section 111 on page 8 and fig. 15).

With respect to claim 46, Malloy teaches the relationships between the attributes are defined independent of restrictions associated with the database (i.e., an attribute order of a hierarchy can be varied, thus the attribute order can be arbitrarily defined, section 111 on page 8 and fig. 15).

With respect to claim 47, Malloy teaches the database is a relational database (i.e., a relational database 140 in fig. 1).

With respect to claim 48, Malloy teaches the database is capable of being utilized with an on line analysis processing (OLAP) system (i.e., OLAP 100 in fig. 1, section 4 on page 1, and section 59 on page 3).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joon H. Hwang whose telephone number is 571-272-4036. The examiner can normally be reached on 9:30-6:00(M~F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain T. Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joon Hwang
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5/1/06

JEAN M. CORRIELUS
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